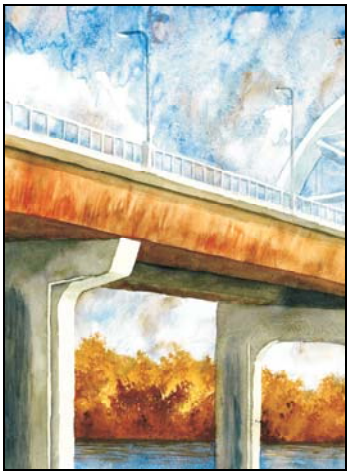
Division of Transportation
System Development
Bureau of Structures
PO Box 7916
Madison, WI 53707-7916



Bridge Manual

Standard Details

DATE: July 15, 2009
TO: Bridge Manual Users
FROM: DTSD – Bureau of Structures
SUBJECT: **July, 2009 Bridge Manual Update**

The Bridge Manual chapters have text and standards that have been revised. Please see the attached sheets for a list, with brief explanation, of the Text and Standards that were revised.

Many changes were fairly minor. Of note, AASHTO has split Fatigue into two categories, Fatigue I & Fatigue II.

Chapter 19 has a new example for Adjacent Box Beam design and corresponding standards.

The example calculations state at the beginning of the example which AASHTO interims the example is current through. A vertical black bar in the left margin notes all changes.

July 2009 Bridge Manual Text Update Summary

Chapter	Page Number(s)	Change
2	5,6,7	Change to incorporate Structures Technical Expert Call number from RDO
3	3	Removed some information regarding vertical clearance and reference the FDM for this information.
5	5	Units for Structural Carbon and Structural HS changed to LB.
	5	Added bid item for CIP piling 10-3/4" x 0.365 inch.
9	4	Use of epoxy-coated bars in wings for Type A1/A3/A4 is now changed to all abutments.
11	10	Fixed a couple of typos in the sentence marked.
	23	For H-piles, if the req'd design capacity is less than the maximum, state only the req'd corresponding driving resistance on the plans.
12	26	In Table 12.8-1, changed term from "operational importance" to "operational classification".
	32	Changed a reference that uses the Standard number to one that uses the Standard name.
13	12	Clarification of wind load application to railings and parapets.
	20	Revised spiral size and spacing for 4' diameter columns.
	24	Temperature and shrinkage forces within a multi-columned pier cap are better defined.
	38	Added section General Footing Considerations
	42	Clarified limit states required for pile & pile footing design.
	Ex E13-1	Mislabeled units
	Ex E13-2	Page numbering was incorrect
14	56	Changed minimum construction limit to 8 ft. for MSE walls.
17	5,6	Removed references to Q and R.
	6	Fatigue is now Fatigue I and Fatigue II
	8	Formatting issue with list of design trucks.
	11	Labeled Fatigue as Fatigue (I or II).
	13	Table 17.2-5 now lists Fatigue I rather than Fatigue
	39	Typos corrected.
	55	Chapter 17 now refers to Chapter 24 to define continuity bar cutoff for steel girder bridges.

Chapter	Page Number(s)	Change
18	8,15,18,24,25	Changes made to meet requirements for new Fatigue I Limit State
	29	Changed a reference that uses the Standard number to one that uses the Standard name.
	Ex E18-1	Fatigue related items updated to match AASHTO
19	11	Added discussion on Fatigue Limit State for concrete and prestressed members.
	19	Clarified discussion on hold-down points.
	32	Added language regarding rehabilitation girder shapes.
	44	Modified Table 19.3-2 regarding pick-up point analysis for 72W" & 82W" girders.
	45	Added Policy Item for use of prestressed slab and box sections.
	46	Removed detail of box section since it appears in Standards.
	51	Removed "(to be included at a later date)" as the design example is now included.
	Ex E19-1	Fatigue related items updated to match AASHTO
	Ex E19-2	Fatigue related items updated to match AASHTO
	Ex E19-3	Added example for single span adjacent box beam.
	Ex E19-4	Clarification note added.
24	46	Switched stress formulas for non-composite with composite.
	Misc.	Changed references that uses the Standard numbers to one that uses the Standard names.
	Misc.	Fatigue related items updated to match AASHTO (text only, not examples as of yet)
	Ex E24-1	Specified example is good thru 2008 AASHTO interims
	Ex E24-2	Specified example is good thru 2007 AASHTO interims
27	3	Included "semi-expansion" in general bearing discussion.
	6	Revised AASHTO section references.
	8	Notes that the 10% capacity increase in not applicable in Wisconsin.
	9	Revised AASHTO section references, added Policy Item, changed anchorage criteria at bottom of page to reflect earlier Exception to AASHTO.
	10	Added LRFD equation numbers.
	11	Added LRFD equation numbers.
	Ex E27-1	Updated revised AASHTO references, increased allowable stress.
28	9	0.003 was changed to correct 0.0003 for shrinkage
30	3,4,7	Enhanced section on Railing Applications to more clearly define when each railing type can be used.

Chapter	Page Number(s)	Change
36	26	Changed a reference that uses the Standard number to one that uses the Standard name.
37	2,4	Defined a pedestrian boardwalk and when to us the Bicyle Design Guide or Bridge Manual for its design.
38	26	Added "minimum requirements" for reference to standard
	26	Changed a reference that uses the Standard number to one that uses the Standard name.
39	3,7	Clarified vertical clearances and referenced FDM Manual for vertical clearances.
40	7	Added a statement allowing the engineer discretion in the use of the rehabilitation guidelines.
	13	Added section 40.7 Rehabilitation Girder Sections with the 45", 54", and 70" prestressed girder sections.

July 2009 Standard Details Update Summary

Chapter 11

Std 11.01
- Added end plate detail for CIP piles in artesian conditions
- Added note advising to only state actual required driving resistance
- Revised bar projection length for CIP piles with reinforcement
- Cleaned up weld symbols on HP shapes
- Removed grade of steel in notes as it is covered by specification

Chapter 12

Std 12.01
- Specify bar steel in abutment body when wing length > 20 ft and wing height > 10 ft

Std 12.02
- Add data to Wing Bar Table for wing length = 24 ft

Std 12.03
- Correct data in Table for extension of abutment body reinforcement in backface

Std 12.04
- Correct reinforcement shown in Section W1 at backface of lower wing pour

Std 12.07
- Added Designer Note to epoxy coat all wing bars
- Changed data in Table for extension of wing bars into body to reflect values for epoxy coated bars

Std 12.08
- Added Designer Note to epoxy coat all wing bars

Chapter 13

Std 13.01
- Added General Note to make all laps "Class C"

Std 13.02
- Added coated lap length for horizontal shaft bars
- Symbol in General Notes was in incorrect location & clarified 12" maximum vertical bar spacing

Std 13.06
- Clarified 12" maximum vertical bar spacing

Chapter 14

Std 14.02
- Added details at expansion joints showing dowel bars in anchor slab and placement of rubberized membrane waterproofing. Also additional bar steel was added to the anchor slab and coping, plus the filler sizes were modified.

Chapter 19

Std 19.01
- Corrected clearance in bottom flange to 1-1/4" (now shown in Detail A)

Std 19.03
- Corrected clearance in bottom flange to 1-1/4" (now shown in Detail A)

Std 19.13
- 29 pairs of #3 bottom flange stirrup bars, not 27

Std 19.14
- Moved 3rd row outermost strands in on 34-40 strand patterns
- Eliminated 22 undraped strand pattern from table to match diagram

Std 19.15
- 29 pairs of #3 bottom flange stirrup bars, not 27

Std 19.16
- Moved 3rd row outermost strands in on 34-42 strand patterns
- Eliminated 22 undraped strand pattern from table to match diagram

Std 19.17
- 29 pairs of #3 bottom flange stirrup bars, not 27

Std 19.18
- Moved 3rd row outermost strands in on 34-42 strand patterns
- Eliminated 22 undraped strand pattern from table to match diagram

Std 19.19
- 29 pairs of #3 bottom flange stirrup bars, not 27

Std 19.20
- Moved 3rd row outermost strands in on 34-42 strand patterns
- Eliminated 22 undraped strand pattern from table to match diagram

Std 19.35
- In "Expansion End" view, changed to **3**-#4 bars beneath flange

Std 19.36
- Reduced length of cap screw for use with ferrule loop
- Cleaned up appearance of washers

Std 19.37
- Reduced length of cap screw for use with ferrule loop
- Cleaned up appearance of washers

Std 19.51
- Updated standard detail for LRFD requirements
- Misc revisions

Std 19.52
- Updated standard detail for LRFD requirements
- Misc revisions

Std 19.53
- Updated standard detail for LRFD requirements
- Misc revisions

Chapter 24

Std 24.02
- Clarified zones where field welding to the flanges in prohibited

Std 24.09
- Modified how camber values may be called-out on a plan

Std 24.12
- Removed this standard. According to specification it is the contractor's responsibility to provide bracing.

Chapter 27

Std. 27.02
- Updated bearing capacities due to dimensions of concrete bearing area under masonry plate.

Std. 27.05
- Updated details for prestressed box beams.

Std. 27.08
- Updated bearing capacities due to criteria for allowable pressure on teflon surface from dead loads and total loads.

Std. 27.09
- Updated bearing capacities due to criteria for allowable pressure on teflon surface from dead loads and total loads.

Chapter 28

Std. 28.01
- Clarified washer type used with 3/4" diameter threaded rod

Chapter 30

Std 30.02
- Removed details for "Thrie" Buffer at end posts

Std 30.10
- Emphasized that parapet reinforcement must be detailed on plans as cast in place

Std 30.11
- Added weight/ft of 6 ft and 8 ft high chain link fences

Std 30.17
- Clarified field erection joint detail dimension for A1 abutments

Std 30.18
- Clarified field erection joint detail dimension for A1 abutments

Std 30.25
- Change note in box to allow this railing type to be used also with a concrete slab and A5 abutment

Chapter 36

Std 36.03
- Added reminder for payment of Post Anchor system, and provided weight for Post Anchorage Type 1 and 2

Chapter 38

Std 38.01
- Notes added to require contact with Railroads and Harbors Section for additional track approval and shoring requirements
- Clarifed pier protection requirements

Chapter 39

Std 39.02
- Clarified dimension is to bottom of base plate
- Corrected 2 typos

Std 39.10
- Clarified dimension is to bottom of base plate
- Redrawn base plate

Chapter 40

Std 40.13
- Updated standard detail for LRFD requirements (endblock and notes)

Std 40.14
- Updated standard detail for LRFD requirements

Std 40.17
- Updated standard detail for LRFD requirements (endblock and notes)

Std 40.18
- Updated standard detail for LRFD requirements

Std 40.19
- Updated standard detail for LRFD requirements (endblock and notes)

Std 40.20
- Updated standard detail for LRFD requirements